RADI 95 09 01 *1VO 9700600-A3 95,05 01 95DF-1032408 (97 07,09) Cost., COSK 19300

Polymerisable liq. crystal cpds. for optical displays, cholesteric dyes or photocurable adhesives - prepd, by reacting chloroformate ends, with mesogenic diol(s) (Eng) C97-028282 NICA JP KR US (REAT BE CHIDE DK ES FLER GB GR

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96.08-26.96WO-FP03756

Polymensable liq-crystals epds, of formula

2-3 AUS M-Y-A-Y-23 (b)

A' A' = 2.30C' spacer, opt. contg. (thio)ether functional S or O atoms, or non-adiacent (1-4C alky hammo gps., in the C chain, M = mesogenic gp.;

 $R \simeq 1.4 C \text{ alkyl}$

BASE AG

Y',Y' = single bond, O, S, O CO, CO O, O CO O, CO NR,: NR-CO-, -O-CO-NR-, -NR-CO-O- or -NR-CO-NR-, with the provision that at least one of gps. Y3 and Y1 is -O-CO-O-, -O-CO-NR

A(8-E1, 9-A2A, 12-L3B) F(10-A11B2, 10-A12C2, 10-B4, 10-G2) G(3-B1, 3-B2, 4-B) L(3-D1D1)

-NR- CO-O- or -NR-CO-NR : and

 Z^*Z' = substituents config. reactive gps. allowing polymerisation to take place, are new.

Also claimed are the following

(i) hq. erystal compsn. (L.1) contg. >1 cpd. (1) and opt. >1 cpd. of formula

ZSSS-ASSS MLSS-PS (II)

and/or P -Y"-M-Y"'-P'(III)

 $A^2 + A^1$, $P^3 + P^4 = H$, 1-30C alkyl, 1-30C acyl or 2-8C cycloalkyl, optimiono-distribution of the collection of t or trisubstd, by 1-6C afkyl gps., and which may contain (thio)ether functional S or O atoms, or non-adjacent (1/4C alkyl)mino gps , in the C'chain:

 $Y^{n} \cdot Y^{10} = Y^{1}$, with the same provision applying to Y^{n}/Y^{n} and Y^{n}/Y^{10} as Y' and Y's.

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 $Z^* = Z^1$

(ii) ends of formula (11)

(iii) liq. ervstal compsns. (L2) contg. ≥1 epd. (I)-(III) and ≥1 chiral

cpd. (iv) big crystal compsns. (L3) comprising 10-100 wt.% (D (H1), 0.90 wt. G other monomers and 0-50 wt. G of >1 chiral epd. all w.r.t. (L3);

(v) the preprior of (I) in which Y' and Y' are -O-CO-O-gps., or mixts. of (b) (vi) the preprior of (II) in which Y and Y are -O-CO-O-gps., or mixts. of (II)

(vii) the prepn. of liq. crystal coatings by applying ≥1 cpd. (1), or compsns. (1.2), and opt, other polymerisable cpds, and chiral cpds, onto a substrate, setting up a liq, orientation by standard techniques and then polymerising the cpds, applied onto the substrate

(viii) coated articles prepd, by the method described in (vii): (ix) cholesteric hq. crystal dyes contg (1.2) or (L3);

(x) pigments piepd, by polymerising (L2) or (L3) and then crushing the polymer into pigment particles.

(b), (H) and (L1)-(L3) are used to make optical display devices, whilst (L2) and (L3) are useful as cholesteric liq. crystal dyes

(claimed). The cpds, can also be used as polymerisable matrix components for polymer-dispersed displays or photocurable liq. crystal-based adhesives.

ADVANTAGE

A combination of low, liq. crystalline phase temps., wide liq. crystalline temp-ranges and high mechanical strength is achieved.

CLAIMED PREPARATION

(I) are prepd, by reacting one or more cpds, of formula

Z1-Y1-A1-O-CO-CL(IVa)

with one or more mesogeme diols

HO-M-OH (V)

to form symmetrical extls.

Z1-Y1-A1-O-CO-O-M-Ö-CO-O-A1-Y1-Z1(Ia).

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or (V) inreacted with (IVa) in a first step and with

Z -Y -A -O-CO-CL(IVb)

in a second step to form an asymmetric cpd.

Z¹-Y¹-A¹-O-CO-O-M-O-CO-O-A²-Y²-Z² (lb).

(Ill) are prepd, by reacting a coloroformate

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PRELLIKKED COMPOUNDS

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20c alkovy carbonyli, 1-20C mono-alkylaminocarbonyl, 1-20C alkylcarbonylmino, formyl, halogen CN, OH or 3O

T = divalent (so, or heterocyclic gp : Y' = Y', O CH₂O, CH₃O, CH₃N, CH₃N, N=CH or N=N g and

Ine gps, is pairs A. A. A. Y. Y. Y. and Z. Z. are the same.

PREFERRED COMPOSITION

(f.2) contain 1-98 mol/ α (f), 1-98 mol/ α (H), and 0.01-90 mol/ α (H) and comprise 60-99,999 wt/ α (I)-(H) and 0.001-40 wt/ α chiral custs in w.i.1 the compsn

PRETERRED PREPARATION

The reaction is carried out in the presence of an (imorganic base,

EXAMPLE

A soln of 5 mmols, 1,4-bist4'-hydroxybenzyl-benzoyloxybenzene (mesogene diol) and 20 ml pyridine was added at 0°C to a soln mil CH3.1 of 12 mmoles chloroformate having the following formula (A).

The reaction mixt, was stirred for 3 h, at room temp, then dil. HCl was added to ppte the prod, and this was filtered off, washed and purified by recrystallisation. The hq. crystalline temp range was 124-462°C and its formula was (B).

(KB)

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